

Exam #1c

Name _____

Student # _____

SHORT ANSWER.

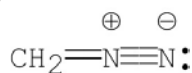
1) Draw the structure of 3-chloro-*N*-ethyl-2-hexanamine.

1) _____

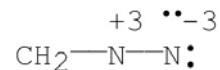
2) Which of the following structures, including formal charges, is correct for diazomethane, CH₂N₂?

2) _____

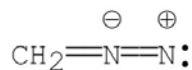
A)



B)

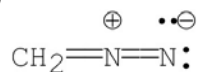


C)



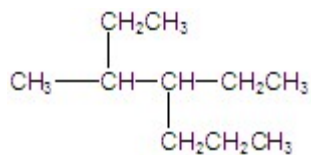
D) :CH₂-N=N:

E)



3) Name the compound.

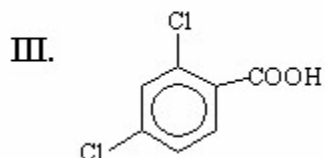
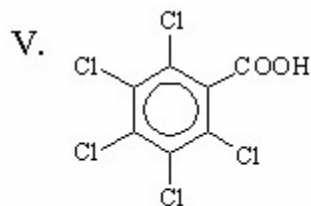
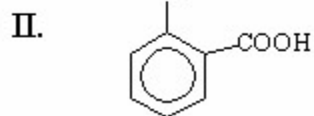
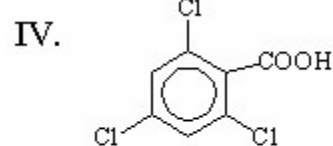
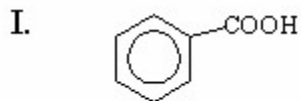
3) _____



- A) 2-ethyl-3-propylpentane
- B) 4-methyl-3-ethylheptane
- C) 4-ethyl-3-methylheptane
- D) 2,3-diethylhexane
- E) 4-ethyl-5-methylheptane

4) Which of the following is the strongest acid?

4) _____



A) I

B) II

C) III

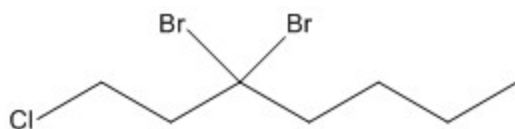
D) IV

E) V

SHORT ANSWER.

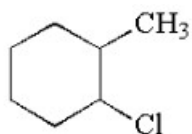
5) Provide an acceptable name for the compound shown below.

5) _____



6) Give the IUPAC name for the following compound:

6) _____



A) 1, 2-chloromethylcyclohexane

B) 1-methyl-5-chlorocyclohexane

C) 1-chloro-5-methylcyclohexane

D) 1-methyl-2-chlorocyclohexane

E) 1-chloro-2-methylcyclohexane

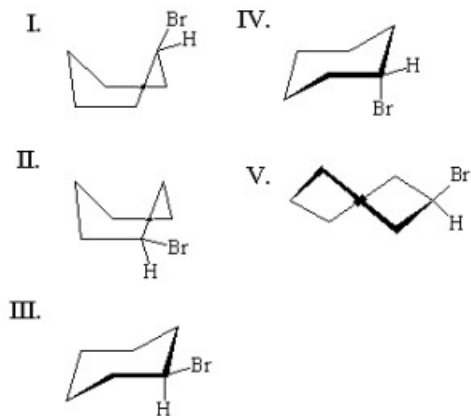
SHORT ANSWER.

7) Draw the most stable conformation of *trans*-1-*tert*-butyl-3-methylcyclohexane.

7) _____

8) Which of the following is the most stable conformation of bromocyclohexane?

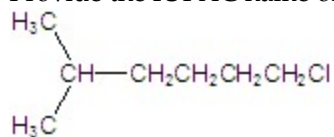
8) _____



- A) I B) II C) III D) IV E) V

9) Provide the IUPAC name of the compound.

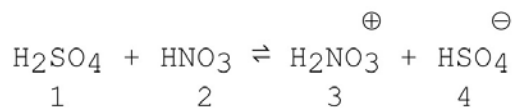
9) _____



- A) 1-chloro-5-methylhexane
 B) 1-chloro-5-methylhexane
 C) 2-methylheptane
 D) 6-chloro-2-methylhexane
 E) 1,1-dimethyl-5-chloropentane

10) Which species act as bases in the following reaction?

10) _____

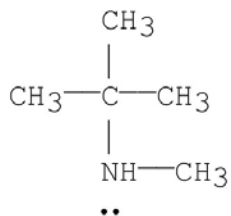


- A) 2 and 4 B) 3 and 4 C) 1 and 2 D) 1 and 3 E) 2 and 3

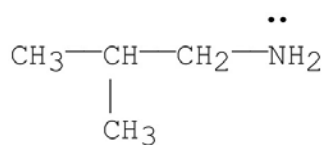
11) Which of the following is a tertiary amine?

11) _____

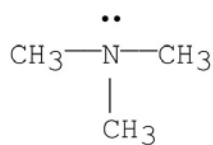
A)



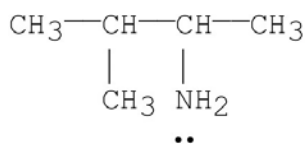
B)



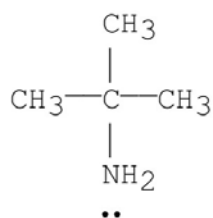
C)



D)

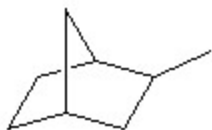


E)



12) Identify the number of tertiary carbons in the following structure.

12) _____



A) 2

B) 4

C) 6

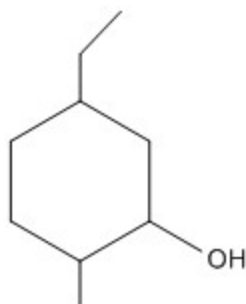
D) 3

E) 5

SHORT ANSWER.

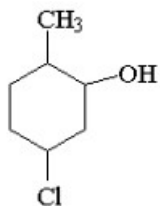
13) Provide an acceptable name for the compound shown below.

13) _____



14) Give the IUPAC name for the following structure:

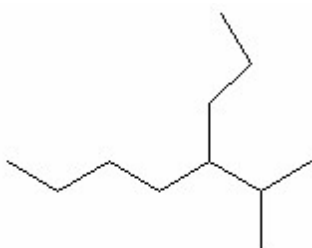
14) _____



- A) 2-methyl-3-chlorocyclohexanol
- B) 3-chloro-6-methylcyclohexanol
- C) 2-methyl-5-chlorocyclohexanol
- D) 5-chloro-2-methylcyclohexanol
- E) 1-chloro-4-methylcyclohexanol

15) Give the IUPAC name for the following structure:

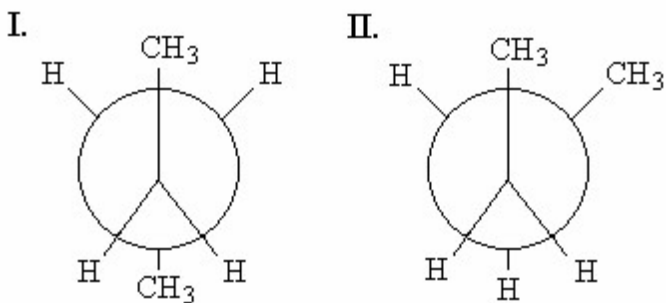
15) _____



- A) 3-ethyl-2-methylheptane
- B) 2-methyl-3-ethylheptane
- C) 2-methyl-3-propylheptane
- D) 4-Isopropyloctane
- E) 5-Isopropyloctane

16) Which of the following best explains the reason for the relative stabilities of the conformers shown?

16) _____



- A) I has more steric strain.
- B) I has more torsional strain.
- C) II has more steric strain.
- D) II has more torsional strain.

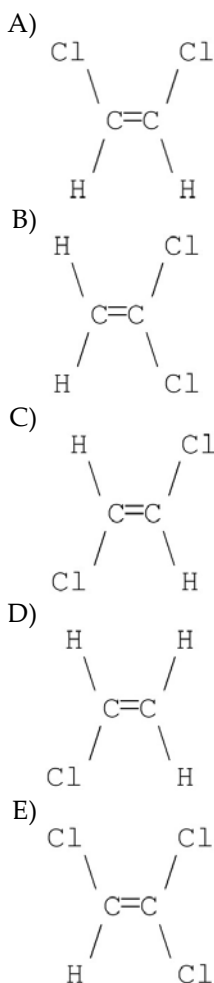
SHORT ANSWER.

17) Draw a resonance contributor and the resonance hybrid for HOCO_2^- .

17) _____

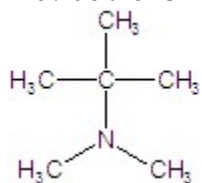
18) Which of the following molecules has a net dipole moment of zero?

18) _____



19) Provide the IUPAC name of the compound.

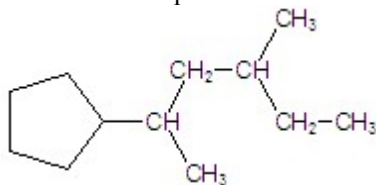
19) _____



- A) N,N,1,1-tetramethylethanamine
- B) N,N-dimethyl-2-butanamine
- C) N,N,2-trimethyl-2-propanamine
- D) N,N,2-trimethylpropanamine
- E) N,N,2-trimethyl-1-propanamine

20) Name the compound.

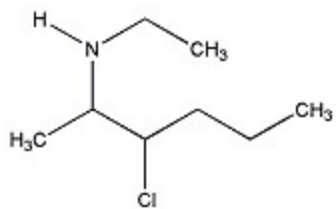
20) _____



- A) 5-cyclopentyl-3-methylheptane
- B) 1-cyclopentyl-1,3-dimethylpentane
- C) 2-cyclopentyl-4-methylheptane
- D) 2-cyclopentyl-4-methylhexane
- E) 5-cyclopentyl-3-methylhexane

EXAM 1C ANSWERS

1)



2) E

3) C

4) E

5) 3,3-dibromo-1-chloroheptane

6) E

7)



or enantiomer

8) C

9) B

10) A

11) C

12) D

13) 5-ethyl-2-methylcyclohexanol

14) D

15) D

16) C

17) resonance contributor: resonance hybrid:

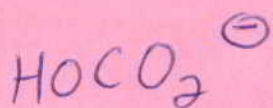
See drawing on other file page.

18) C

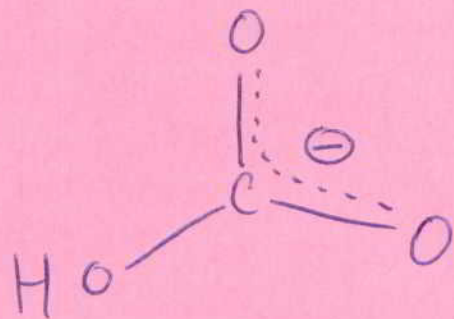
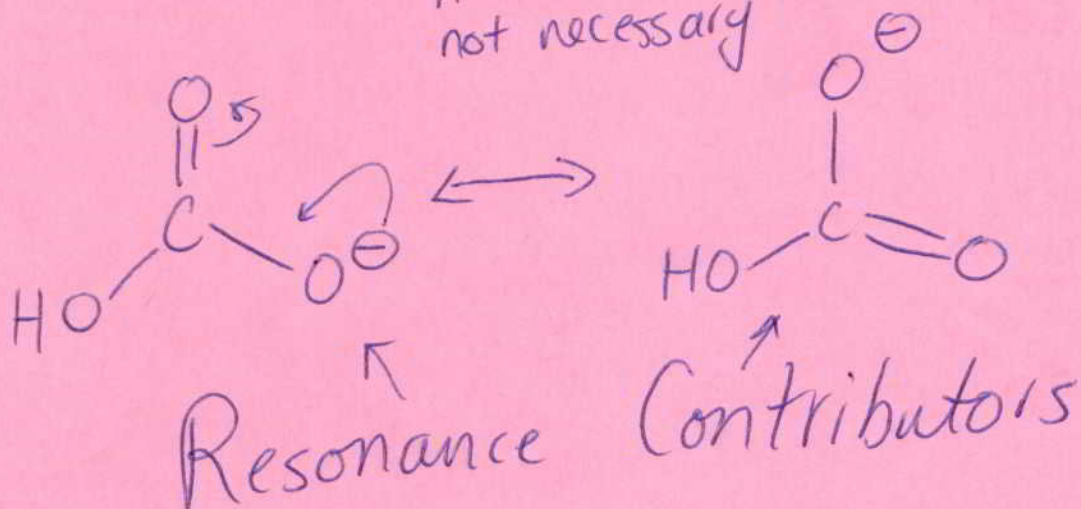
19) C

20) D

ANSWER



Arrows are not necessary



Resonance hybrid